M. Flom Associates, Inc. - Global Compliance Center
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85225-7176
www.mflom.com general@mflom.com (480) 926-3100, FAX: 926-3598

Environmental Assessment

for

Mobiles/Fixed Base Station

for

FCC ID: FCC ID: ROJAERO-HSD
Model:AERO-HSD^{+}

to

Federal Communications Commission

47 CFR 1.1310 (MPE)
Radiofrequency Radiation Exposure Limits

Date Of Report: January 26, 2004

On the Behalf of the Applicant:

Thrane & Thrane A/S

At the Request of:

P.O. Wire Transfer Deposit

Thrane & Thrane A/S
Lundtoftegardsvej 93D
DK-2800 Lyngby, Denmark

Attention of:

Claus Schakow Nielsen, M.Sc.E.E. SMPS
Engineering & Development
+48 39 55 88 21; FAX: +45 39 55 88 88
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+45 39 55 83 77; FAX: +45 39 55 88 88
Email: ttw@tt.dk

Supervised By:

Morton Flom, P. Eng.

Table of Contents

Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) **Test Report (Supplemental)**

b) Laboratory: M. Flom Associates, Inc.
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d0410040

d) Client: Thrane & Thrane A/S
Lundtoftegardsvej 93D
DK-2800 Lyngby, Denmark

e) Identification: AERO-HSD+
FCC ID: ROJAERO-HSD
S/N: Not available – Prototypes tested.
Description: Aeronautical Satellite Phone

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: January 26, 2004
EUT Received: January 12. 2004

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:

Morton Flom, P. Eng.

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

Identification of the Equipment Under Test (EUT)

Name and Address of Applicant:

Thrane & Thrane A/S
Lundtoftegardsvej 93D
DK-2800 Lyngby, Denmark

Manufacturer:

Applicant

FCC ID:	ROJAERO-HSD
Model Number:	AERO-HSD^{+}
Description:	Aeronautical Satellite Phone
Type of Emission:	10K0G1D, 2K50G1D, 21K0G1D, 40K0G1D, 38K0FD7W
Frequency Range, MHz:	1631.5 to 1660.5
Power Rating, Watts:	30

____ Switchable x Variable ____ N/A

Modulation:

____ AMPS
x TDMA
____ CDMA
x 16QAM

Antenna:

_____ Helical
_____ Monopole
_____ Whip
x AERO H/H+ (High Gain Antenna, HGA)

Note: For RF Safety test antenna gain taken at the upper range of expected gain (i.e. 0 dBd) and RF Power set to highest nominal power across all channels.

Industry Canada

Industry Canada
Industrie Canada

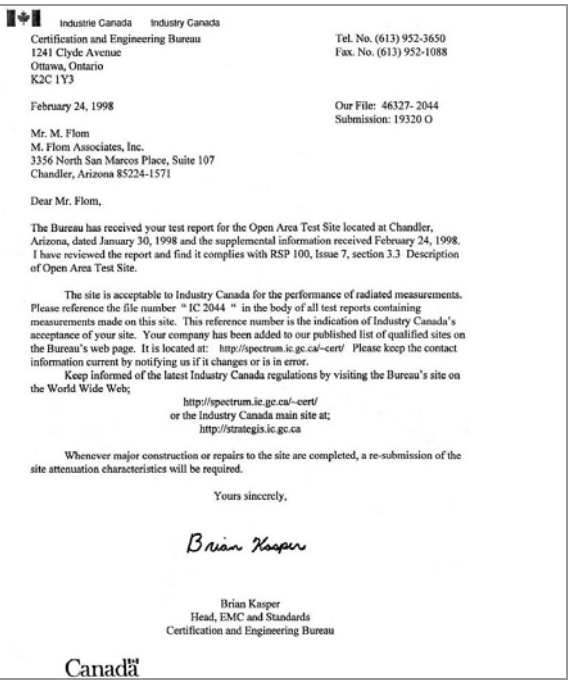
Certification and Engineering Bureau

M. Flom Associates Inc.

is recognized as an approved testing facility, in accordance with the provisions of the Industry Canada Terminal Attachment Programme, subject to any exclusions specified in their letter of approval.

Director, Certification and Engineering Bureau

Canada



Industrie Canada Industry Canada

Certification and Engineering Bureau
1241 Clyde Avenue
Ottawa, Ontario
K2C 1Y3

Tel. No. (613) 952-3650
Fax. No. (613) 952-1088

February 24, 1998

Our File: 46327- 2044
Submission: 19320 O

Mr. M. Flom
M. Flom Associates, Inc.
3356 North San Marcos Place, Suite 107
Chandler, Arizona 85224-1571

Dear Mr. Flom,

The Bureau has received your test report for the Open Area Test Site located at Chandler, Arizona, dated January 30, 1998 and the supplemental information received February 24, 1998. I have reviewed the report and find it complies with RSP 100, Issue 7, section 3.3 Description of Open Area Test Site.

The site is acceptable to Industry Canada for the performance of radiated measurements. Please reference the file number " IC 2044 " in the body of all test reports containing measurements made on this site. This reference number is the indication of Industry Canada's acceptance of your site. Your company has been added to our published list of qualified sites on the Bureau's web page. It is located at: http://spectrum.ic.gc.ca/~cert/ Please keep the contact information current by notifying us if it changes or is in error.

Keep informed of the latest Industry Canada regulations by visiting the Bureau's site on the World Wide Web;

http://spectrum.ic.gc.ca/~cert/
or the Industry Canada main site at;
http://strategis.ic.gc.ca

Whenever major construction or repairs to the site are completed, a re-submission of the site attenuation characteristics will be required.

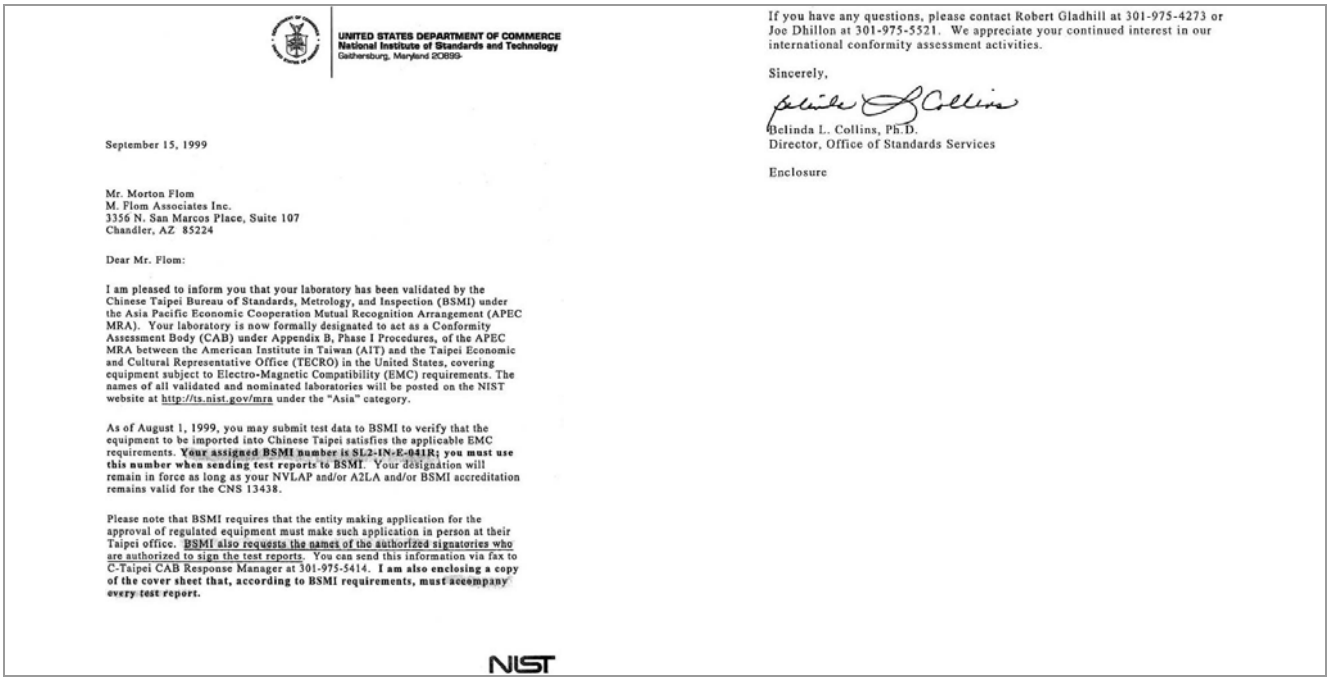
Yours sincerely,

Brian Kasper

Brian Kasper
Head, EMC and Standards
Certification and Engineering Bureau

Canada

NIST



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

September 15, 1999

Mr. Morton Flom
M. Flom Associates Inc.
3356 N. San Marcos Place, Suite 107
Chandler, AZ 85224

Dear Mr. Flom:

I am pleased to inform you that your laboratory has been validated by the Chinese Taipei Bureau of Standards, Metrology, and Inspection (BSMI) under the Asia Pacific Economic Cooperation Mutual Recognition Arrangement (APEC MRA). Your laboratory is now formally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA between the American Institute in Taiwan (AIT) and the Taipei Economic and Cultural Representative Office (TECRO) in the United States, covering equipment subject to Electro-Magnetic Compatibility (EMC) requirements. The names of all validated and nominated laboratories will be posted on the NIST website at http://ts.nist.gov/mra under the "Asia" category.

As of August 1, 1999, you may submit test data to BSMI to verify that the equipment to be imported into Chinese Taipei satisfies the applicable EMC requirements. **Your assigned BSMI number is SL2-IN-E-041R; you must use this number when sending test reports to BSMI.** Your designation will remain in force as long as your NVLAP and/or A2LA and/or BSMI accreditation remains valid for the CNS 13438.

Please note that BSMI requires that the entity making application for the approval of regulated equipment must make such application in person at their Taipei office. BSMI also requests the names of the authorized signatories who are authorized to sign the test reports. You can send this information via fax to C-Taipei CAB Response Manager at 301-975-5414. **I am also enclosing a copy of the cover sheet that, according to BSMI requirements, must accompany every test report.**

If you have any questions, please contact Robert Gladhill at 301-975-4273 or Joe Dhillon at 301-975-5521. We appreciate your continued interest in our international conformity assessment activities.

Sincerely,

Belinda L. Collins, Ph.D.
Director, Office of Standards Services

Enclosure

NIST

Standard Test Conditions
and
Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2000, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

Page Number	5 of 7.
Name of Test:	Environmental Assessment
Specification:	FCC: 47 CFR 1.1310
Measurement Guide:	ANSI/IEEE C95.1 1992
Test Equipment:	Maximum Permissible Exposure (MPE) measurement system, consisting of: Narda 8717-1174R, Radiation meter Narda 8761D, E-field probe (300 kHz – 3 GHz) (Calibrated Nov-98)
Measurement Procedure:	1. The following measurements were performed with a Narda probe using ANSI/IEEE C95.1 as a guide. 2. Prior to making any measurements, the measurements system was calibrated in accordance with the manufacturer's procedures. 3. The EUT's radiating element (antenna) was placed on a 1 m tall table for ease of testing. For equipment normally operated on a metal surface, a ground plane was used. 4. The remaining equipment necessary to operate the EUT was maintained at a distance from the measurement arrangement suitable to minimize interference with the measurements. 5. The minimum safe distance was calculated from the formula Power Density = EIRP / $4\pi R^2$ (Peak Watts/m^2). The calculation is shown with the measurement data. 6. With the EUT operating at maximum power, a search was initiated for worst case emissions with the probe raised and lowered over a range of 0.2 to 2 meters in height and over a horizontal plane of 0^o to 360^o. 7. Average values were calculated for the whole body (0.2-2.0m), lower body (0.2-0.8m) and upper body (1.0-2.0m).
Results:	Attached.

Test Setup: Maximum Permissible Exposure (MPE)

Page Number 7 of 7.

Name of Test: R.F. Radiation Exposure

FCC Rules: 1.1307, 1.1310, 1.1311, 2.1091
Description, EUT: See page 2 of Test Report

Limits: Controlled Exposure	0.3-3.0 MHz:	Limit [mW/cm^2] = 100
47 CFR 1.1310	3.0-30 MHz:	Limit [mW/cm^2] = ($900/f^2$)
Table 1, (A)	30-300 MHz:	Limit [mW/cm^2] = 1.0
	300-1500 MHz	Limit [mW/cm^2] = f/300
	1500-100,000 MHz:	Limit [mW/cm^2] = 5.0

Instruments
Narda 8717-1174R, Radiation Meter
Narda 8760B, E-field probe (300 kHz – 1 GHz)
Narda 8761D, E-field probe (300 kHz – 3 GHz)

Test Frequencies, MHz	1631.5 1643.5 1660.5
Power, Conducted, W	= 30
Power + Ant. Gain	= 94.9 (50% duty cycle)
Limit: Controlled Exposure	= 5 mW/cm^2
Antenna Gain	= 5 dB
Antenna Model	TT-300-D

Results at tested distances

	Power Density, mW/cm^2		
Probe Height, m	Freq. 1631.5 MHz Distance 39 cm	Freq. 1643.5 MHz Distance 39 cm	Freq. 1660.5 MHz Distance 39 cm
2.0	0.01	0.01	0.01
1.8	0.1	0.09	0.12
1.6	0.12	0.11	0.12
1.4	0.55	0.41	0.59
1.2	0.76	0.63	1.0
1.0	1.5	1.6	1.6
0.8	0.93	0.84	1.2
0.6	0.7	0.43	0.67
0.4	0.25	0.21	0.15
0.2	0.02	0.02	0.01

Power Density Calculations: The measured power density readings were summed and the results divided by the number of readings to calculate the average.

	1631.5 MHz	1643.5 MHz	1660.5 MHz
Whole body average (0.2 - 0.8 m, mW/cm^2) =	0.49	0.44	0.58
Lower body average (0.2 - 0.8 m, mW/cm^2) =	0.48	0.38	0.51
Upper body average (1.0 - 2.0 m, mW/cm^2) =	0.51	0.48	0.57

Supervised By: Morton Flom, P. Eng.

(The following will be placed in the Instruction Manual)

Mandatory Safety Instructions to Installers & Users

Use only manufacturer or dealer supplied antenna.

Antenna Minimum Safe Distance: 39 cm, 50% Duty Cycle Factor**.**

Antenna Gain: 5 dBi referenced to an isotropic source.

The Federal Communications Commission has adopted a safety standard for human exposure to RF (Radio Frequency) energy which is below the OSHA (Occupational Safety and Health Act) limits.

Antenna Mounting: The antenna supplied by the manufacturer or radio dealer must not be mounted at a location such that during radio transmission, any person or persons can come closer than the above indicated minimum safe distance to the antenna i.e. 39 cm, 50% Duty Cycle Factor.

To comply with current FCC RF Exposure limits, the antenna must be installed at or exceeding the minimum safe distance shown above, and in accordance with the requirements of the antenna manufacturer or supplier.

Base Station Installation: The antenna should be fixed-mounted on an outdoor permanent structure. RF Exposure compliance must be addressed at the time of installation.

Antenna Substitution: Do not substitute any antenna for the one supplied or recommended by the manufacturer or radio dealer. You may be exposing person or persons to excess radio frequency radiation. You may contact your radio dealer or the manufacturer for further instructions.

Warning: Maintain a separation distance from the antenna to a person(s) of at least 39 cm, 50% Duty Cycle Factor.

You, as the qualified end-user of this radio device must control the exposure conditions of bystanders to ensure the minimum separation distance (above) is maintained between the antenna and nearby persons for satisfying RF Exposure compliance. The operation of this transmitter must satisfy the requirements of Occupational/Controlled Exposure Environment, for work-related use. Transmit only when person(s) are at least the minimum distance from the properly installed, externally mounted antenna.

Testimonial
and
Statement of Certification

This is to certify that:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.

2. **That** the technical data supplied with the application was taken under my direction and supervision.

3. **That** the data was obtained on representative units, randomly selected.

4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer: Morton Flom, P. Eng.